



Effects of the ionospheric convection measured by SuperDARN on the ground electric field at polar station Hornsund

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We investigate the effects of ionospheric convection on the ground-level DC electric field measured at polar station Hornsund (77.00 N, 35.55 E). We use the results of a SuperDARN (SuperDual Auroral Radar Network) potential mapping technique to obtain the electric potential due to the ionospheric convection over Hornsund and we analyse diurnal variations of this potential. These are compared with the diurnal variations of the vertical component of the electric field observed at Hornsund in fair-weather conditions where the effects of low atmosphere global electric field generators have been removed by assuming a diurnal change according to the Carnegie curve. We conclude that a 10 kV change in the overhead convection potential results in an average change of the ground field of 10%. We also conclude that SuperDARN observations and the potential mapping technique can be used for the subtraction of the effects of magnetospheric influences on the atmospheric electricity parameters in polar regions.